

IRISH CAVE EXPLORATIONS.

OUR knowledge of the Irish fauna in Neolithic and early historic times has been greatly extended by recent researches into the cave remains of Ireland. These have been carried out during the past few years by a committee, under the auspices of the British Association and of the Royal Irish Academy. Two reports on these investigations have been published in the Transactions of the latter. The first dealt with the exploration of the caves of Kesh, in the county Sligo, and the second, which has just been issued, with that of the county Clare caves. The committee is now at work further south, in the county Cork.

The Clare caves, which are situated about thirty miles from the sea coast, among beautiful surroundings, in a district of crags and lakes, lie in the lands of Edenvale and Newhall. Our illustration shows the entrance to two of these caves (marked A and B) in a steep ridge of rock overlooking an ancient track, known as the Pilgrims' Road, which leads from Ennis to Killone Abbey and the Holy Well. The others lie barely a mile to the west of these. All the caves have been formed by the solvent action of water on the limestone in which they occur. Several of them are of great extent, with complicated ramifications. They are mostly about 100 feet above sea-level. They differ from many of the great English caves in the absence

seemed to show signs of having been artificially fractured, indicate the possible contemporaneity of man with these deer, but the evidence in this case is not conclusive. The bear, however, was clearly coexistent with man, and probably lingered on in Ireland long after the Irish elk and the reindeer had become extinct. A knee-cap of a large bear, showing the incisions of a knife, was found in one of the caves, and other bear bones were obtained from the upper layer along with charcoal and the remains of domestic animals. Unfortunately all the cave deposits had been greatly disturbed by burrowing animals, such as badgers and foxes, which inhabited them chiefly in recent times.

Some of the caves show traces of human occupation of long continuance in early times, while others may have been used as shelters for short periods. Scrapers and flint flakes, bone pins, and stone implements occurred, while a gold bracelet, and another, richly decorated, of bronze, were found. Of bronze, also, was a buckle engraved with an interlaced pattern and plated with silver. One of the most remarkable of the objects discovered was a lamp, the receptacle being hollowed out of a round stone, not carved in any pattern, but with deep grooves round the sides. Of these and other objects the plates illustrating the report give a good idea. Together with the implements, numbers of human bones were found, although there is no evidence that the caves had ever been used as places of burial. The bones revealed nothing which might lead us to suppose that they belonged to a different race from that inhabiting Ireland at the present time; but their study elicited the fact that some of them belonged to individuals who habitually assumed the squatting position common to all primitive peoples.

R. F. SCHARFF.



Photo.]

[R. Welch.

FIG. 1.—View showing entrances of Bat's Cave (A) and Elder-Bush Cave (B), Newhall.

of a well-marked stalagmite floor, and of their early cave-fauna, including the rhinoceros, hippopotamus, cave-bear, hyæna, &c. The deposits are composed, as a rule, of two easily distinguishable strata. The upper one, generally consisting of brown earth, contains charcoal associated with the bones of domestic animals, while the second is often of a very tenacious nature, and includes many remains of the bear and reindeer, Irish elk, and Arctic lemming.

Of particular interest is the occurrence of the Arctic fox and of the wild cat. The former of these is exceedingly rare in England, and had not been known to occur in Ireland, while as to the latter, it has been held as doubtful whether it ever inhabited Ireland. Several jaws and teeth were found, however, which agreed, not with the Scottish wild cat, but with that commonly met with throughout the African continent, and popularly known as the Caffer cat.

More than 2000 bones of birds were obtained, comprising fifty-eight species, the most noteworthy of which is the crane. The Welsh traveller, Giraldus Cambrensis, stated that when he visited Ireland in the twelfth century cranes were to be met with in flocks, and it is of interest that this account of their presence has been verified by the discovery of these remains.

The occurrence of a shed antler of the Irish elk, and of long bones of this species and of the reindeer, which

trated essence rather than the minute details of the facts, and this is one of the objects in view in the production of the several pilot charts originated on both sides of the Atlantic within recent years. Many subjects have to be dealt with, and the space is strictly limited, so that the mariner has before him on his chart-room table all the essential features of the particular subjects.

Two pilot charts are published by the Deutsche Seewarte at Hamburg, one for the North Atlantic and Mediterranean area, issued monthly, the other for the North Sea and Baltic region, issued quarterly. They are elaborately and excellently got up, and in the quality of their varied contents afford further evidence of that thoroughness characteristic of German investigators. The face of each Atlantic chart (36 inches by 27 inches) is covered with information of immediate concern in navigating a ship—the mean direction and force of the prevailing winds in every 5° square; the northern and southern limits of the trade winds; the paths and the intensity of storm systems; the regions of mist and fog; the dust atmosphere off Africa; the tropical rain area; the set and velocity of ocean currents; ice; derelicts; steamship and sailing-ship routes and great circle tracks; copious remarks bearing on all these subjects; variation curves; and illustrations of the storm-warning signals adopted by countries on both sides of the ocean. The whole of the back is devoted to articles, with or without illustrations, discussing subjects of general interest to

the navigator, and not necessarily limited to the North Atlantic area. A special investigation of the winds, currents, and air and sea temperatures experienced along the Mediterranean steamship routes is being carried out at the Seewarte, and the results are now appearing month by month on the pilot chart.

The issue for last February contains a very complete work on the handling of ships in tropical hurricanes—Atlantic, Indian and Pacific Oceans, the Arabian and China Seas. The April number gives an account of a very severe Atlantic storm, the maximum violence occurring on the rise of the barometer; a still longer article deals with water-spouts. The May chart gives the true bearing and the compass bearing at about three hundred positions round the coasts of the British Isles. The North Sea-Baltic publication is equally complete, each quarterly issue containing one general chart for the region and others for the several months of the quarter, together with an abundance of letterpress dealing with a great variety of subjects, such as the investigation of the fisheries and the physical condition of the waters of the region, the surface currents of the Kattegat and Sound, ice, and tidal streams.

With five years' experience in the preparation of the monthly North Atlantic pilot charts, our Meteorological Office has now commenced the publication of a similar series of "Monthly Meteorological Charts of the Indian Ocean North of 15° South Latitude, and Red Sea." The area covered by the map extends from 30° N. to 15° S., between the meridians of 30° and 100° E. The first number, issued in London on May 9, is for the month of May. Presumably future issues will be well in advance of the month to which they relate, so as to be in the hands of mariners navigating the Indian Ocean during the month. Generally, the chart presents the same features as the North Atlantic one. For each ocean space of 5° of latitude by 5° of longitude the frequency of winds of light, moderate, or gale force is shown for the sixteen even points of the compass, the observations upon which the results are based covering a period of fifty years. Apparently through inadvertence a pecked line intended to indicate the northern limit of the south-east trade has been omitted. Tracks of some cyclonic storms are given in red. It is left to the sailor to assume whether the date given is at the commencement or end of the tracks, there being no directing arrow heads. The set and velocity of the ocean currents are shown in blue, and in a lighter blue the variation curves for 1907. Use is made of the land spaces for supplying a variety of information by means of letterpress and inset charts.

A small chart of the whole area gives, for the month, the average distribution of barometric pressure over the sea, and the mean temperature of the air and of the water. An enlarged map of the Guardafui and Ras Hafún district shows the currents, sea temperatures, and misty weather in this dangerous locality, and suitable notes accompany the map. Over Arabia appear remarks on the various air and water elements of the Red Sea and Gulf of Aden. On the back of the sheet are given complete summaries of the elaborate storm and weather signals of the Bay of Bengal and of the Húgli River storm signals, which are far more precise than those in use in any other part of the world. A map of the southern Indian Ocean, from the equator to 40° S., and 30° to 120° E., is used for reproducing the late Dr. Meldrum's monthly tracks of cyclones between 1848 and 1885. There are notices to captains relating to the collection of meteorological observations, to the necessity for accurate determination of the errors of barometers in use, and to the compass adjustment marks at Kalpi anchorage.

Altogether the new publication gives promise of supplying a much-needed want in a simple and easily accessible form for a part of the ocean about which there has hitherto been but little information. The monthly variations in the circulation of the waters of the Arabian Sea and of the Bay of Bengal will alone well repay careful study, while a more accurate knowledge of the different winds of the region covered by the chart cannot fail to be of the greatest practical benefit to shipmasters and their officers.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—The electors to the Linacre professorship of comparative anatomy will proceed to an election next month. Candidates are desired to send in their names so as to reach the registrar's office not later than Saturday, July 7. The Linacre professor is by virtue of his office a fellow of Merton College. He is entitled to receive from the college a stipend of 700*l.* a year in addition to the emoluments of a fellowship, which amount at present to 200*l.* a year.

CAMBRIDGE.—Mr. E. S. Roberts, Master of Gonville and Caius College, has been elected Vice-Chancellor for the ensuing academical year.

Mr. L. Noon, Trinity College, has been elected to a John Lucas Walker studentship in pathology.

The assessment to be paid by the colleges to the University in the present year has been fixed at 30,038*l.*, or 13*l.* per cent. on the college incomes.

The Chancellor, His Grace the Duke of Devonshire, has made a gift of 500*l.* to the special fund now being raised on behalf of the University library.

Mr. C. L. Boulenger, King's, has been nominated to the University table at the Naples Zoological Station; and Mr. K. Lucas, Trinity, to the table at the Plymouth Marine Biological Laboratory.

The special board for mathematics has made some minor alterations in the proposals for the re-modelling of the Mathematical Tripos, parts i. and ii., but it is proposed to submit unchanged to the Senate the principles of the original report.

Ten candidates have been successful in the special examination in agricultural science and the first examination for the University's diploma in agriculture.

Mr. W. A. Cunningham, Christ's, for a dissertation on "Tanganyika," and Mr. C. Shearer, Trinity, for a dissertation on "The Development of Larval Nephridia," have been approved as advanced students for the certificate of research.

Prof. Bradbury, Prof. Osler, Dr. S. West, and Prof. Rose Bradford have been appointed examiners in medicine; Dr. Rivers Pollock and Prof. Spencer, examiners in midwifery; and Dr. Kellock, Prof. Barling, Mr. Stanley Boyd, and Mr. Dunn, examiners in surgery for the ensuing academical year.

A sum of 6000*l.* from the benefaction fund, raised by the University Association, has, with the approval of the Chancellor, been contributed to the cost of the botany and medical school buildings.

The name of "Frederick James Quick, of Trinity Hall," founder of the Quick professorship of biology, has been added to the list of benefactors in the Commemoration Service.

A ROYAL COMMISSION has been appointed for the purpose of holding an inquiry into Trinity College, Dublin, and the University of Dublin. The terms of reference of the commission are as follows:—"To inquire into and report upon the present state of Trinity College, Dublin, and of the University of Dublin, including the revenues of the College and of any of its officers and their application, the method of government of the University and of the College, the system of instruction in the College and the teachers by whom it is conducted, the system of University examinations, and the provision made for post-graduate study and the encouragement of research; and also to inquire and report upon the place which Trinity College, Dublin, and the University of Dublin now hold as organs of the higher education in Ireland, and the steps proper to be taken to increase their usefulness to the country." Among the commissioners are Sir Edward Fry (chairman), Sir A. W. Rücker, F.R.S., and Prof. D. J. Coffey.

ACCORDING to the *Reichsanzeiger*, the number of students who took the "Doktor-Ingenieur" degree of the technical Hochschulen at Berlin, Hanover, and Aachen during the last winter semester was seven in Berlin, five in Hanover, and four in Aachen, while the number who took this degree during the two semesters from March, 1905, to